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Polly Lowry
Central Valley Regional Water Quality Control Board
11020 Sun Center Drive, Suite 200
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Re: Tentative Waste Discharge Requirements General Order for Existing Milk Cow Dairies

Dear Ms Lowry

Thank you for the opportunity to review and comment on the Tentative Waste Discharge Requirements General Order for Existing Milk Dairies (Order). Both water quality and dairies are important to the people of California and their economy. An Order that both protects water quality and provides for an economically viable dairy industry is in the best interest of the people of California.

The corner stone of protecting water quality on dairies is nutrient management. Nutrient management has been my passion and central to my over forty five year career. I am a Certified Professional Agronomist, Soil Scientist and Crop Advisor. Nutrient, salinity and irrigation management has been primary to the Consulting Services and Analytical Laboratories that I have operated or managed for over forty three years. During that time I have come to know how on-farm practices come to be adapted and what is required to staff an agricultural consultancy.

Below are three general comments followed by ones pertaining to specific sections of the Order.

1. **Phased implementation of the Order is essential if it is to be effectively and economically implemented.**

There are insufficient qualified personnel and service superstructure to implement the Order on the schedule outlined in the Tentative Order. Several years will be required to requite and train sufficient personnel. It is my experience that new people must repeat a cycle before being able to work effectively. Given that the agricultural cycle is annual, about four years will be needed to get a new staff up to speed. Availability of equipment, such as flow meters, is based on current market demand and months or years will be required to supply enough for the 1600 dairies that will be impacted by the regulators.

There will be a steep learning curve and a lot to learn for everyone concerned, Regional Board staff, consultants, dairy operators, their employees and farmers. A lot of new skills are to be mastered. People learn bits at a time not all at once. For example, when learning to

fly, a student pilot is taught one skill at a time. Even then there are crashes. We can not afford for implementation of this Order to crash. More progress will occur in the long run if deliberate, small, incremental steps are taken from the onset.

Good nutrient and water management can be economic for dairy operators and as its value is recognized many will voluntarily embrace it. Having introduced nutrient management to many farmers during my 45 years, I have seen this occur numerous times. A farmer will try a little, observe the improvement and then do much more. Given the annual agricultural cycle this process will take time but once accomplished there will be much less need for enforcement.

Phased implementation of the order is needed because we can not do it on the schedule outlined in the Order, and will be more efficient and effective in incremental steps.

2. Nutrient management will provide by far the greatest water protection and should be implemented first.

Most impact on ground water occurs in application areas. It can be shown that more than ninety percent of nitrogen percolated into groundwater from a dairy is from the application areas. Increasing nutrient use efficiency by thirty percent will protect groundwater more than eliminating all percolation from the production area. For that reason it is recommended that nutrient management be implemented first and that all aspects of the order that will not result in or are needed for improved nutrient management be eliminated or postponed until good nutrient management is implemented.

3. Flexible prohibitions, specifications, limitations and provisions, will be required.

Implementation of the Order will be a new endeavor for many involved including Regional Board staff, discharges and consultants. There is uncertainty concerning effectiveness of some measures required by the order. With experience it may be found that a less restrictive measure than the one in the order provides sufficient protection of water quality. Use language that allows the latitude to the Executive Officer.

Specific comments are limited to the Monitoring and Reporting Program, A Attachment C and the Preliminary Assessment Tool.

Monitoring and Reporting Program

4. The format was difficult to follow. Grouping all information about a substrate in one place would be helpful.

5. 5.a. Manure should be sampled only prior to field application, once or twice per year. Data collected months prior to application will have little value for nutrient management.

6. 5.a. Un-ionized ammonia and dissolved oxygen are applicable to discharges to fish habitat. Most liquid dairy waste will be discharged to land application area. Please delete this requirement except for discharges to fish habitat. The same is applicable to other places in the Order.

7. 6.a. Ground water does not change rapidly. Two samples per year per well is excessive. Annually for NO_2-N and EC and once per five years for other parameters would be adequate.

8. 6.b. Water districts or canal companies analyze samples and make data available. This data should be adequate. Where water is from consistent sources less frequent sampling would be sufficient.

9. 8. One sample per five years is not sufficient for efficient nutrient management. Nitrate-nitrogen in root zones measured prior to planting or side dress time is an effective tool that should be used for every crop in every field. University of California researchers have calibrated pre-side dress profile nitrate tests for sugar beets and cotton. Dellavalle Laboratory and other consultancies have adapted these tests to a wide variety of other crops. Many certified agronomists, crop advisors and soil scientists have skills needed to use these tools effectively. Once per five years would be adequate for evaluating phosphorus and potassium loading.

10. 15 Groundwater does not change rapidly. Four samples per year per well is excessive. Annually for NO_2-N and EC and once per five years for other parameters would be adequate.

11. 15. Groundwater monitoring, except to collect data to facilitate nutrient management will be costly and will do nothing to improve nutrient management. Delete all except what is needed for nutrient management.

12. 17. This does nothing to facilitate nutrient management. Please delete.

13. 17.b. This is an unreasonable request. "Natural background ground water unaffected by others does not exist.

14. 23. Ground water does not change rapidly. Four samples per year per well is excessive. Annually for NO_2-N and EC and once per five years for other parameters would be adequate.

15. 25.b. Mixing and dividing sub-samples in a bucket is not efficient or effective. Experience gained on with NAPT and MAP programs indicates that some form of mechanical mixing is required in order to effectively divide samples. I serve on an advisory committee for the MAP program and have served on boards for the NAPT program and its predecessors. This requirement will introduce errors that will mask precision required elsewhere in this order.

16. 25. A very critical precision is omitted. Manure is biologically active and will change rapidly when the environment is changed. Samples should be frozen (or at least refrigerated) during storage and transit.

17. 26. A very critical precision is omitted. Process wastewater is biologically active and will change rapidly when the environment is changed. Samples should be refrigerated during storage and transit.

18. 26.a. This requirement may be in conflict with required holding times.

19. 28.ii. Mixing and dividing sub-samples in a bucket is not efficient or effective. Experience gained on with NAPT and MAP programs indicates that some form of mechanical mixing is required in order to effectively divide samples. I serve on an advisory committee for the MAP program and have served on boards for the NAPT program and its predecessors. This requirement will introduce errors that will mask precision required elsewhere in this order. Laboratories are equipped to grind, mix and subdivide samples.

20. 28.a.ii. Delete the requirement to submit one pint of soil. The requirement to consult the laboratory is more appropriate. One quart of soil is needed where saturation extracts are to be used.

21. 28.b. Sampling depths listed may be suitable for sampling once per five years but are not appropriate for pre-plant or pre-side dress sampling where rooting depth is appropriate. Defer depths to certified agricultural specialists and require their inclusion in the NMP.

22. 28.iv Washing sampling equipment between each sample is not practical and will add little to data quality. Given the concentrations of constituents of interest and soil volumes physically removing soil between samples will be adequate. Sampling costs would be increased greatly. Any advantage gained would be more than offset by onsite mixing and dividing. Please change or delete this requirement.

23. 28. Add a requirement that samples be refrigerated during storage and transit to the laboratory.

24. 29.a.i. Sampling during the harvest operation presents a worker safety issue. Harvest equipment is not designed with sampling in mind. Adequate samples can be collected from the storage. Sampling methodology should be designed by a certified professional familiar with individual facilities.

25. 29.a.ii Harvested plant material can be biologically active and will change rapidly when the environment is changed. Samples should be refrigerated during storage and transit.

26. 32. Samples should be collected before any treatment. They should be maintained cool during storage and transit.

    All systems have a device between pressure tanks and the well to allow air into the column following a pumping cycle. This device can be altered to allow sampling.

27. 33. The University of California has no process for accepting laboratories or analytical methods.

    The NAPT method for ammonium and nitrate nitrogen uses 2M potassium chloride. 1M KCl would be less efficient at extracting ammonium.

28. 34. The University of California does not recommend analytical methods.

29. 35. The University of California has no process for accepting laboratories or analytical methods.

30. Table 1 ln3. Dissolved oxygen will not occur in anaerobic lagoons, why sample for it. Dissolved oxygen is not needed for waters applied to fields. Delete this requirement except for samples discharged to a water body where dissolved oxygen has environmental impact.

31. Table 1 ln 7 Un-ionized ammonia is applicable only to water bodies that support aquatic life. Aquatic life is not intended for dairy lagoons, application areas or ground water. Evaluation for un-ionized ammonia should be limited to surface water and discharges to surface water.

32. Table 1 ln 9 Automated Dumas (also called n by combustion) nitrogen should be accepted for analysis of total N in soil and plant material. The University of California uses this method for soil and plant analysis. The NAPT program has data comparing Dumas N with TKN showing comparable and more consistent results.

Nutrient Management Plan

33. I. This information is repeated on several reports. Require it only once and include it in various reports by reference.

34. I.A. A single map is required for a lot of information. Several maps with different scales may be needed to clearly display the data without being unusable due to clutter. Reword to allow more than one map.

35. III.A The first NMP can be simplified by omitting the per field requirement. Plans can be made with farm totals. In any event, farm plans changed based on real time conditions.

36. IV.B. Setbacks and buffers are applicable to climates that result in runoff into surface waters. This rarely occurs in much of the Central Valley. Levees and tale water return systems can provide adequate protection. Please include these practices.

Technical Standards

37. II.B. The University of California does not have such recommendations. ‘,..based on publications from the Dairy Water Quality Assurance Work Group” is suggested.

    Producers with above average yields should be allowed to use more nitrogen than listed in sited publications.

38. III.B. “recognized by” should be changed to “based on publications from…” CDFA does not certify fertilizer content. It regulates label guarantee. This could be changed to the “guaranteed analysis,” which is provided by the manufacture.

39. III.A.,C. Nutrient credit from any previous crop should be considered. Delete legume.

40. V.A.5 Covering third parties by the order is problematic in that it is a disincentive to use of manures as nutrients or soil amendments. Secondly, when sold to brokers it will be very difficult for the discharger to know in advance who the broker will sell to. Limit this requirement to providing the manifest.

41. A.17 Add allowance for distribution uniformity.

42. B.1.a. Add tissue test to the list.

43. B.2.a.i. Pre-plant or pre-sidedress soil profile nitrate tests have been calibrated by University of California researchers and should be included here.

44. B.2.b. The report from the University of California committee of consultants indicates that this 1.65 times removal is the minimum for crops grown with organic amendments. Higher requirements may apply where soil organic matter needs to be increased such as with new land.

45. B.2.c. Review and amendment of the NMP should be annual or more frequently. As stated in the general comments above, nutrient management in farming systems is the cornerstone of water quality protection. The highest priority should go to activities that implement nutrient management.

46. C.5. Include vineyard in this exception.

47. VII.A. Comments about setbacks apply here.

Preliminary Dairy Assessment

48. This assessment is more complex than necessary for a preliminary assessment. Dealt values result in unrealistic conclusions. A less complex assessment tool limited to realistic data needed to implement the NMP is recommended.

I would be pleased to discuss these two issues in more detail with you and our staff.

Sincerely,

Nat B. Dellavalle, CPAg, CPSS, CCA.

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